

Claims

1. An information processing apparatus characterized by having:

5 a storage section storing a plurality of operating systems (OSs),

a processor that executes processes which are based on said plurality of OSs, and

process management means that schedules a partition defined as a process of each of said plurality of OSs
10 along a time axis, and executes control for switching said plurality of OSs on the basis of partition switching control along the scheduling, and characterized in that:

said process management means is configured to perform process control in which an interrupt processing
15 partition as an interrupt processing period corresponding to an interrupt processing request is set so as to coincide with a pre-set partition switching timing, and to cause any of said OSs to execute an interrupt process as a process subsequent to an end of a scheduled
20 partition in a partition schedule.

2. The information processing apparatus according to Claim 1, characterized in that said process management means is configured to execute a process of setting said
25 interrupt processing partition so as to coincide with an earliest partition switching timing that occurs after occurrence of the interrupt request.

3. The information processing apparatus according to
30 Claim 1, characterized in that said process management means is configured to perform process control in which a

partition being executed is suspended to execute the interrupt process, in a case where the interrupt processing request is a request to which a maximum allowable delay time is set and the pre-set partition switching timing does not occur within the maximum allowable delay time from the occurrence of the interrupt request.

4. The information processing apparatus according to Claim 1, characterized in that:

said processor that executes the processes which are based on said plurality of OSs is configured to have a plurality of processors capable of operating in parallel, and

said process management means is configured to schedule said partition along the time axis as to each of said plurality of processors to execute partition switching control along a partition schedule as to each of the processors, and to execute a process of selecting one of a plurality of partition schedules corresponding to said plurality of processors, and setting said interrupt processing partition so as to coincide with a partition switching timing in the selected partition schedule.

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5. The information processing apparatus according to Claim 4, characterized in that said process management means is configured to execute a process of selecting one of the plurality of partition schedules in which an earliest partition switching timing occurs after the occurrence of the interrupt request, and setting said

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interrupt processing partition so as to coincide with the earliest partition switching timing.

6. The information processing apparatus according to
5 Claim 1, characterized in that said process management means is configured to execute, in a case where the interrupt request is a request in which a minimum allowable delay time is set, a process of setting said
10 interrupt processing partition so as to coincide with a pre-set partition switching timing that occurs after the minimum allowable delay time passes from the occurrence of the interrupt request.

7. The information processing apparatus according to
15 Claim 1, characterized in that said process management means is configured to perform, in a case where an interrupt process corresponding to an interrupt processing request is executable in a scheduled partition defined by a pre-set partition schedule, a process of
20 executing the interrupt process in said scheduled partition.

8. The information processing apparatus according to Claim 1, characterized in that:

25 said processor that executes the processes which are based on said plurality of OSs is configured to have a plurality of processors capable of operating in parallel, and

said process management means is configured to have
30 a processor-corresponding partition switching module arranged to execute process control corresponding to each

of the processors.

9. The information processing apparatus according to Claim 8, characterized in that said partition switching
5 module is configured to have interrupt group information as interrupt request originating source information which can be accommodated by a processor to which the partition switching module is made to correspond, and to execute a
10 process related to an interrupt request entry stored in a reservation queue corresponding to a group which can be accommodated by a processor to be identified by said interrupt group information, from a plurality of interrupt group-corresponding reservation queues, one being provided for each interrupt group.

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10. A process control method for controlling switching of processes which are based on a plurality of operating systems (OSs), characterized by including:

a step of detecting occurrence of an interrupt
20 processing request,
an interrupt processing partition setting step of setting an interrupt processing partition as an interrupt processing execution period corresponding to said interrupt processing request so as to coincide with a
25 pre-set partition switching timing, and
an interrupt processing execution step of causing any of said OSs to execute an interrupt process as a process subsequent to an end of a partition scheduled in a partition schedule according to said interrupt
30 processing partition setting information.

11. The process control method according to Claim 10, characterized in that said interrupt processing partition setting step is characterized by executing a process of setting said interrupt processing partition so as to
5 coincide with an earliest partition switching timing that occurs after the occurrence of the interrupt request.

12. The process control method according to Claim 10, characterized in that said interrupt processing partition
10 setting step suspends a partition being executed and setting the interrupt processing partition at a suspended point, in a case where a maximum allowable delay time is set to the interrupt processing request and the pre-set partition switching timing does not occur within the
15 maximum allowable delay time from the occurrence of the interrupt request.

13. The process control method according to Claim 10, characterized by further including:

20 a step of scheduling said partition along a time axis as to each of the plurality of processors that execute processes which are based on said plurality of OSs, to execute partition switching control along a partition schedule as to each of the processors, and
25 characterized in that:

said interrupt processing partition setting step selects one of a plurality of partition schedules corresponding to said plurality of processors, and setting the interrupt processing partition so as to
30 coincide with a partition switching timing in the selected partition schedule.

14. The process control method according to Claim 13, characterized in that said interrupt processing partition setting step executes a process of selecting one of the plurality of partition schedules in which an earliest partition switching timing occurs after the occurrence of the interrupt request, and setting said interrupt processing partition so as to coincide with the earliest partition switching timing.

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15. The process control method according to Claim 10, characterized in that said interrupt processing partition setting step executes, in a case where the interrupt processing request is a request in which a minimum allowable delay time is set, a process of setting said interrupt processing partition so as to coincide with a pre-set partition switching timing that occurs after the minimum allowable delay time passes from the occurrence of the interrupt processing request.

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16. The process control method according to Claim 10, characterized by further including a step of executing, in a case where an interrupt process corresponding to an interrupt processing request is executable in a scheduled partition defined by a pre-set partition schedule, an interrupt process corresponding to the interrupt processing request in said scheduled partition.

17. A computer program that executes process control for controlling switching of processes which are based on a plurality of operating systems (OSs), characterized by

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including:

a step of detecting occurrence of an interrupt processing request,

5 an interrupt processing partition setting step of setting an interrupt processing partition as an interrupt processing execution period corresponding to said interrupt processing request so as to coincide with a pre-set partition switching timing, and

10 an interrupt processing execution step of causing any of the OSs to execute an interrupt process as a process subsequent to an end of a partition scheduled in a partition schedule according to said interrupt processing partition setting information.